

SOUTH DAKOTA SCIENCE STANDARDS GLOSSARY

Note: This glossary contains explanations that are not necessarily formal scientific definitions of terms used in the standards document.

ΔG Change in free energy, which is the quantity of energy related to the capacity of a system to do work. This can be used to predict spontaneity.

ΔH Change in enthalpy, which is heat energy released or absorbed when a physical or chemical change occurs at constant pressure.

ΔS Change in entropy or the change in a measure of the randomness or disorder of a system.

Abiotic Refers to absence of living organisms; non-living.

Acceleration Rate of change in velocity.

Acid Substance that produces hydrogen ions; has pH of less than 7.

Action-reaction pair Two forces that are equal in magnitude but opposite in direction and act on two different bodies. The reaction force is dependent on the action force.

Active transport An energy-utilizing mechanism by which a cell moves a substance across the cell membrane from a point of lower concentration to a point of higher concentration, against the diffusion gradient.

Adaptation (1) The change in a population or species over time; (2) in natural selection, a physical or behavioral characteristic of some organisms in a population that improves their chances for survival and reproduction in their environment compared with the chances of other organisms in the population.

ADP Adenosine diphosphate, a compound that has two phosphate groups. Combines with another phosphate group and energy to form ATP (adenosine triphosphate).

Air mass A large body of air with the uniform temperature and humidity of its source region.

Allele One of several possible forms of a gene, each affecting the hereditary trait somewhat differently.

Amplitude (1) In a wave, the distance from the rest position of a medium to either the crest or the trough; (2) the maximum change in the amount of a particular quantity from its equilibrium value in a wave or periodic motion. Examples of such quantities are position, pressure, or electric field intensity.

AMS American Meteorological Society - An organization whose membership promotes the development and dissemination of information and education on the atmospheric and related sciences. (Source: American Meteorological Society. (n.d.) Retrieved November 15, 2004, from <http://www.ametsoc.org>)

Anemometer An instrument that measures the force and direction of the wind. Also called a wind gauge.

Animalia A eukaryotic kingdom containing all animals.

Aquifer A body of rock that is sufficiently permeable to conduct groundwater and yield economically significant quantities of water to well and springs.

Archaeobacteria An evolutionary distinct group of bacteria that resemble true bacteria but differ biochemically and genetically and are found in diverse and sometimes extreme environments.

Arrhenius acid-base Chemical substances that increase the concentration of hydrogen ions (acid) or hydroxide ions (base) in aqueous solutions.

Asexual reproduction Production of offspring without the fusion of gametes.

Asteroids Small rocky objects in the solar system, mostly lying between the orbits of Mars and Jupiter, ranging in size from small dust particles up to around 1,000 kilometers across.

Atmosphere The mixture of gases and particles surrounding the Earth and other planets.

Atom The smallest part of an element which still has the properties of that element.

ATP Adenosine triphosphate, a compound that has three phosphate groups and is used by cells to store energy.

Attribute A quality, property, or characteristic of somebody or something.

Big Bang Theory A cosmological model, based on Einstein's general theory of relativity, in which the universe was compressed to infinite density approximately 15-20 billion years ago and has been expanding ever since.

Binary compounds Two different elements chemically bonded together.

Biogeochemical cycles A circuit where a nutrient moves back and forth between living and nonliving components of ecosystems.

Biome A region which has distinct types of organisms, substrates, and climate, all interacting to produce a large, distinct, and complex biotic community.

Biosphere The life zone of the Earth.

Biotechnology A set of biological techniques developed through basic research and now applied to research and product development.

Biotic Pertaining to life or organisms.

Bohr model A model of the distribution of electrons in an atom based on the assumption that the electron in a hydrogen atom is in one of a number of circular orbits.

Boiling point The temperature at which the transition from the liquid to the gas phase occurs in a pure substance at a fixed pressure.

Bronsted-Lowry Acid A proton donor.

Bronsted-Lowry Base A proton acceptor.

Camouflage The adaptive characteristic that organisms use to blend into their environment in order to avoid being seen by predators or prey, especially coloration.

Casting To cause to fall onto or over something or in a certain direction, as if by throwing, e.g., candles casting light.

Catalyst A substance that increases the rate of a chemical reaction without being changed itself.

Celestial body Natural objects in space constituting a unit of astronomical study (sun, moon, stars).

Cell The basic structural and functional unit of all organisms.

Cell membrane Selectively permeable boundary of a cell.

Cell wall Semi-rigid permeable structure surrounding the cell membrane in certain organisms.

Centripetal force The force that is directed toward the center of a circle which is necessary to keep a body moving in the circle. The reaction to this force, which acts on another body, is called centrifugal force. $F_c = mv^2/r$

Charged particle An electron, proton, or ion.

Chemical change A change in which different substances with different properties are formed; also called a chemical reaction.

Chemical energy Energy stored or released in chemical bonds.

Chemical property A description of how one substance reacts in the presence of another substance.

Chlorophyll Photoreactive pigments found in photosynthetic organisms.

Chloroplasts Organelles in some organisms responsible for energy production.

Circuit A closed path through which electrons flow.

Circulatory system Pertaining to the heart, blood, and lymph vessels and the circulation of blood and lymph; transports materials.

Class A taxonomic group containing one or more orders.

Classify To assign things or people to classes or groups.

Cleavage The tendency of a rock or mineral to break along planes determined by the crystal structure always parallel to a possible face.

Climate The average weather conditions of an area over a long period of time, i.e. 30 years.

Cloning The process of making genetically similar copies.

Co-dominance Said of trait where no dominance is shown; results in a blending of traits.

Comets Small bodies in orbit around the Sun that are composed of rock and ice.

Comparative anatomy Investigates the inherited similarities and differences among organisms in bone structure and in other parts of the body.

Compare To examine in order to note the similarities or differences of.

Complex machine Machine made of many simple and compound machines.

Component An element of a system.

Compound A chemical combination of two or more different elements (atoms).

Compound machine Machine made of two or more simple machines.

Compound microscope Light microscope that has two lens systems: the objective and the eyepiece.

Concentration A quantitative measurement of the amount of solute dissolved in a given amount of solvent.

Condensation The change of a substance from a vapor to a liquid.

Conduction Transfer of energy through the collision of molecules.

Conductor Material through which electric current passes.

Conservation of Matter (Law of) A fundamental principle of classical physics that states matter cannot be created or destroyed in an isolated system.

Constellation A group of stars interpreted as forming configurations.

Controlled variable A group, individual, or parameter that serves as a standard in an experiment.

Convection current Current caused by the expansion of a liquid or a gas as the temperature rises.

Convection Transfer of energy through the movement of molecules from one place to another.

Coriolis Effect Force due to the Earth's rotation, capable of generating currents. It causes moving bodies to be deflected to the right in the Northern Hemisphere and to the left in the Southern Hemisphere.

Coulomb's Law of Electrostatics A way of predicting the amount and direction of the force between two point charges surrounded by a medium. $F = -q_1q_2/er^2$, in which q is the charge, r is the distance between the centers of the charges, and e is the dielectric constant of the medium.

Covalent bonding Bonding of atoms by sharing electrons.

Covalent compounds Substances consisting of atoms that share pairs of electrons with each other.

Current (1) The quantity of electrical charge which flows past a point in a given time; (2) ocean water moving in streams.

Cytoplasm The region between the nuclear membrane and the cell membrane.

Data Information, often in the form of facts or figures obtained from experiments or surveys, used as a basis for making calculations or drawing conclusions.

Decomposition reactions The chemical reaction when one substance breaks down into simpler substances.

Dehydration synthesis Enzyme controlled reaction in which substrates are joined together to form one larger substrate by the removal of water.

Density Ratio of the mass per unit of volume. ($D=m/v$)

Deposition The natural process of depositing materials in layers.

Diagram A chart or graph.

Dichotomous key An identification key that contains pairs of contrasting descriptions, used to identify and classify organisms.

Differentiation Process by which cells specialize and develop into a specific type of cell.

Diffraction The redistribution or spreading of waves in space due to the presence of an intervening object.

Diffusion The movement of particles from an area of higher concentration to an area of lower concentration.

Digestive system System of the body that breaks down food so that it can be used by an organism.

Displacement reaction An atom or molecule replaces another in a compound.

Dissolve To cause to pass into solution.

DNA Deoxyribonucleic acid. DNA molecules carry the genetic information necessary for the structure and function of cells, thereby controlling inheritance.

Doppler effect The apparent change in frequency of sound or light caused by the motion of the source, observer, or both.

Dormancy/dormant In an inactive state, when growth and development slow or cease, in order to survive adverse environmental conditions.

Double displacement reaction The chemical reaction that occurs when the positive ion of one compound replaces the positive ions of another.

Dynamic Characterized by continuous change or activity.

Eclipse The total or partial obscuring of one celestial body by another.

Ecosystem An organization and interaction of a community of organisms with their physical environment.

Ectotherm Organism that is not capable of maintaining its own body heat.

El Nino Upwelling of warm water in the Pacific Ocean characterized by shifts in "normal" weather patterns.

Electromagnet Magnet made from a current-carrying wire.

Electromagnetic Of or caused by a mutual interaction of electric and magnetic fields.

Electromagnetic radiation Radiation consisting of electric and magnetic waves that travel at the speed of light. Examples: visible light, radio waves, gamma rays, x-rays.

Electromagnetic spectrum Range in wavelengths from longest radio to shortest cosmic including visible spectrum.

Electron configuration The arrangement of electrons in an atom.

Electron The particle of an atom which has a negative charge; found outside the nucleus.

Element Matter made up of only one kind of atom.

Empirical formula The symbols for the elements combined in a compound with subscripts showing the smallest whole-number mole ratio of the different atoms in the compound.

Endangered species A species of animal, plant, or other organism, whose numbers are so few, or declining so quickly, that it may soon become extinct.

Endocrine system A system of ductless glands that regulates bodily functions via hormones secreted into the bloodstream.

Endoplasmic reticulum A system of bi-layered membranes that transport and assist in protein synthesis within eukaryotic cells.

Endotherm Organisms that are capable of maintaining their body temperature above the temperature of their environment.

Endothermic A reaction that absorbs energy. The product is in a higher energy state than the reactants.

Energy The capacity to do work.

Energy pyramid Diagram showing the decrease of energy through a food chain.

Environment The sum of all abiotic and biotic factors that act upon an organism or an ecological community and ultimately determine its form and survival.

Equilibria The rate of forward chemical reaction is equal to the rate of the reverse chemical reaction.

Equinox The two instances of the year in which day and night are equal.

Erosion Wearing away of the land by the action of water, ice, or wind.

Eubacteria One of the three superkingdoms or domains of life. Organisms are typically unicellular, prokaryotic, and mainly heterotrophic.

Eukaryotes Organisms whose cells have a nucleus enclosed by a membrane.

Evaporation Change of state from a liquid to a vapor.

Evolution Inheritable changes in a population spread over many generations. Can be precisely defined as any change in the frequency of alleles within a gene pool from one generation to the next.

Excretory system A system that removes wastes from an organism.

Exothermic Release of energy.

Experimental error A measure of the variation which exists among data.

Explore To investigate; examine.

Extinct Having no members of the species or family in existence.

Extinction The elimination of an entire species.

Fact A statement or assertion of verifiable information.

Family (1) A taxonomic group containing one or more genera; (2) a group of elements with similar properties found in a vertical column on the Periodic Table.

Flexibility Capable of being bent or flexed; pliable. Objects that are bendy, soft, smooshy, and rubbery are flexible.

Fluorescence Emission of secondary light generated by excitation by a photon.

Force (1) That which causes or prevents changes of either velocity or shape of a body; (2) a push or pull one body exerts on another.

Formula Abbreviation for a compound.

Fossils Inorganic remains, traces, or imprint of an organism that has been preserved since sometime in the geologic past.

Fracture A break other than along a cleavage plane.

Frequency The number of waves per second.

Friction The force that opposes motion between two surfaces that are touching each other.

Front The atmospheric phenomenon created at the boundary between two different air masses.

Fundamental forces The four known forces which influence all matter in the universe; they include electromagnetic force, strong force, weak force, and gravitational force.

Fungi A kingdom of eukaryotic organisms that include yeasts, molds, smuts, and mushrooms.

Galaxy A large group of stars, gas, and dust held together by gravity.

Gamete A sex cell. (See Germ cell)

Gamma ray detectors Instruments that detect electromagnetic radiation with wavelengths shorter than approximately 1 Angstrom.

Gas A state of matter with indefinite shape and volume.

Gene splicing The process of producing altered DNA, usually by breaking a DNA molecule and inserting new genes.

Genealogy Study of one's ancestry; summary history or table of a person's ancestry.

Genetic recombination A series of techniques in which DNA fragments are linked to self-replicating forms of DNA to create recombinant DNA molecules. These molecules in turn are replicated in a host cell to create clones of the inserted segments.

Genus Taxonomic group containing one or more species.

Geologic stratification The building up of layers of deposits in the Earth's crust.

Geologic time The period of time extending from the formation of the earth to the present.

Geological Features Features of the earth such as mountains, valleys, plains, oceans.

Geospatial technology Technology that typically includes a GIS (geographic information system) and GPS (global positioning system) and remote sensing.

Germ cells Collective term for cells in the reproductive organs of multicellular organisms that divide by meiosis (sex cell formation) to produce gametes (sex cells).

Germination When a seed sprouts.

Gravitational force The pull that makes all bodies in the universe tend to move toward each other due to their masses.

Greenhouse effect An increase in the warming effects of infrared radiation absorption brought about by an increase in levels of carbon dioxide and other greenhouse gases in the atmosphere.

Habitat The place or environment where a plant or animal naturally or normally lives and grows.

Hardy-Weinberg equilibrium Allele frequencies in a population tend to remain the same from generation to generation unless acted on by outside influences.

Hibernation To be in a sleeplike dormant state over the winter while living off the reserves of body fat, with a decrease in body temperature and pulse rate and slower metabolism.

Hierarchical A ranking from the most general to the most specific.

High pressure Air mass of higher than normal pressure.

Homeostasis (1) The maintenance of a stable internal environment in an organism despite changes in the external environment; (2) regulation of a factor that attempts to keep that factor at an equilibrium.

Hormone A chemical substance produced in the body by a gland, which has a specific regulatory effect on the activity of other cells.

HR diagram (Hertzsprung/Russell diagram) shows the relationship of a star's color, temperature, and brightness.

Humidity Water vapor in the air.

Hybrid automobile One that uses both gasoline and an alternative fuel source.

Hybrid Offspring of genetically different parents. (e.g. Tt)

Hydrolysis Enzyme controlled reaction in which a substrate, with the addition of water, is separated into two substrates.

Hydrosphere The water portion of the earth which contains the oceans, seas, lakes, and rivers.

Hypothesis (1) A statement that suggests an explanation for an observation or an answer to a scientific problem and can be tested experimentally; (2) a proposed explanation of a phenomenon.

Image formation The process of bringing waves together in such a way as to produce a likeness of the source of the waves. Lenses or mirrors are used to do this. A real image can be projected onto a screen and is inverted; a virtual image cannot be projected onto a screen.

Immune system The system which protects the body from foreign substances and pathogenic organisms.

Inclined plane Simple machine used to move objects on a slope.

Inertia A property of all matter, representing the resistance to any change in its state of motion.

Inference A logical conclusion drawn from the available evidence and prior knowledge.

Inhibitors A substance that retards or stops a chemical reaction.

Insulator Material through which electric current does not easily pass.

Integumentary system The skin and its accessory structures.

Intensity In sound waves, the amount of energy in each wave.

Interaction The way one object relates to another.

Interference The mutual effect of several waves by which they reinforce or neutralize each other.

Interrelationships To bring into mutual relation.

Invertebrate Organism that does not possess a backbone.

Ion An atom or molecule that has gained or lost one or more electrons and has a negative or positive charge.

Ionic bonding The combining of atoms by losing or gaining electrons.

Ionic compound A compound containing a bond that is formed between oppositely charged ions.

K_{eq} A constant, characteristic for each chemical reaction; relates the specific concentrations of all reactants and products at equilibrium at a given temperature and pressure.

Kinetic energy The amount of work that a system can do because of its motion. $E_k = mv^2/2$

Kinetic molecular theory Explains the properties of gases in terms of energy, size, and motion.

Kingdom The broadest or most generalized division of biological classification.

Krebs Cycle Part of aerobic respiration, also called the citric acid cycle.

KWL chart What you know, what you want to know, and what you learned.

Law A generalization that describes recurring facts or events in nature.

Law of Conservation of Energy The observed fact that in any chemical or physical process, energy is neither created nor destroyed.

Law of Conservation of Matter The observed fact that when two or more elements react to produce a compound, the total mass of the compound is the sum of the masses of the individual elements.

LeChatelier's principle If a system at equilibrium is disturbed by applying stress, the system will adjust in such a way as to counter the stress.

Lewis Acid-base An atom, ion, or molecule that accepts an electron pair (acid) or donates an electron pair (base) to form a covalent bond.

Lewis structures A formula in which atomic symbols represent nuclei and inner-shell electrons; dot-pairs or dashes between two atomic symbols represent electron pairs in covalent bonds, and dots adjacent to only one atomic symbol represent unshared electrons.

Life cycle The series of stages in form and functional activity through which an organism passes between successive recurrences of a specified primary stage.

Light energy The kind of energy that travels as visible radiation consisting of units called photons.

Linear In or like a line.

Liquid Matter with a definite volume and indefinite shape.

Lithosphere The solid part of the Earth; made up of the crust and upper mantle.

Longitudinal wave A periodic disturbance in which particles of the medium move parallel to the line of propagation of the disturbance.

Low pressure An air mass of lower than normal pressure; can bring precipitation.

Lunar eclipse Passing of the moon into the Earth's shadow.

Luster The appearance of the reflection of light from a surface (e.g., mineral).

Lysosomes A cell organelle that contains digestive enzymes.

Magnet An object that is surrounded by a magnetic field and that has the property, either natural or induced, of attracting iron or steel.

Magnetic field The region around a magnet where the magnetic force acts.

Magnetism Properties or qualities of substance that have the ability to attract iron or steel.

Magnitude The property of relative size or extent.

Main block elements Groups 1-2 and 13-18 on the Periodic Table.

Manipulative variable Experimental factor which can be changed.

Mass The amount of matter an object contains, a measure of its inertia.

Matter Something which occupies space and has mass.

Mechanical advantage The ratio of the output force to the input force.

Mechanical energy A combination of potential and kinetic energy.

Meiosis The process in which chromosome numbers decrease to half the original number.

Melting point The temperature at which a solid substance changes to a liquid state.

Metallic characteristics See metals.

Metalloids Elements that have properties of both metals and non-metals.

Metals Elements that are good conductors, malleable, and ductile.

Meteorites Part of a meteoroid that survives travel through Earth's atmosphere to land on Earth.

Meteors A phenomenon (a streak of light) in the sky at night results when a meteoroid enters the Earth's atmosphere and air friction causes the meteoroid to melt, vaporize, or explode. Commonly called a "shooting star."

Meteoroid Any solid object moving in inter-planetary space that is smaller than a planet or asteroid but larger than a molecule.

Migration Moving from one region to another.

Mineral A naturally occurring, inorganic solid that has a definite composition and certain physical properties.

Mitochondria Organelle of a cell where much of the respiration occurs.

Mitosis A nuclear division that maintains original chromosome number.

Mixture Two or more substances that are not chemically combined and can be separated by physical means.

Moh's scale A scratch test for determining comparative hardness using ten standard minerals, from talc to diamond.

Molecular formula A chemical formula that specifies the actual number and type of atoms in a compound.

Molecule Two or more elements covalently bonded.

Monera A kingdom of prokaryotic bacteria, blue-green algae, and various primitive organisms.

Motion A natural event that involves the change in the position or location of an object.

Muscular system The muscles, cells, tissues, and organs that affect movement, also responsible for heat production in many homeotherms.

Mutation The appearance, deletion, or modification of an allele on a chromosome, resulting in a genetic change.

NASA National Aeronautics and Space Administration

Natural resources A deposit of naturally occurring material such as coal, wood, or water.

Natural selection The theory that organisms with favorable variations are better able to survive and reproduce than organisms not as well adapted.

Nervous system (1) Nerve cells and tissues, including the brain, which transmit nerve impulses; (2) network of cells specialized to carry information to and from all parts of the body.

Neutrons The particle of an atom which has a neutral charge.

Newtonian mechanics The science which deals with the effects of forces upon bodies or fluids at rest or in motion. It is based on the precepts of Sir Isaac Newton.

Niche The particular way in which a species functions in an ecosystem.

Nitrogen cycle The circulation of nitrogen through the soil, atmosphere, and organisms.

NOAA National Oceanic and Atmospheric Administration (USA)

Non-metals Elements that lack the physical and chemical properties of metals.

Nonstandard unit Unit of measurement expressed in terms of objects (such as paper clips, sticks of gum, shoes, etc.).

Non-vascular plant Plants lacking xylem and phloem.

Nuclear change (reaction) A reaction which affects the nucleus of an atom.

Nuclear dynamics Changes to stars caused by the nuclear fusion reactions which fuel them; these include changes in density, energy, pressure, temperature, mass, and size.

Nucleus (1) Part of a eukaryotic cell that contains all of the genetic information needed to perform the functions; (2) part of an atom that contains protons and neutrons.

Observe Use the senses and instruments to gather information.

Ocean trench A rift or canyon in the ocean floor caused by plate tectonics.

Ohm's Law The relationship between current, resistance, and potential difference in an electrical circuit. $E = IR$, in which E is potential difference, I is current, and R is resistance.

Opacity The degree to which light travels through an object.

Opaque Impervious to light, so that images cannot be seen through it.

Orbit A path described by one body in its revolution around another (as by the Earth around the sun); one complete revolution of a body describing such a path.

Order Taxonomic group containing one or more families.

Organ A part of the body that consists of different types of tissue and that performs a particular function.

Organelle A cell structure that carries out specialized functions.

Organism An individual constituted to carry on the activities of life.

Orientation The way something is positioned in space.

Orifice An opening to a cavity or passage of the body; a hole or aperture (e.g., mouth).

Osmosis The diffusion of a solvent (e.g., water) through a semi-permeable membrane.

Ozone depletion A decrease in stratospheric ozone resulting from the use of ozone-depleting chemicals (chloroflorocarbons, methyl bromide, etc.).

Parallel circuit Circuit that connects several objects in a way that the current for each object has its own path.

Parasitism A relationship between a parasite and its host.

Particle Any very small part of matter.

Passive transport Transport of a substance through a cell membrane without cellular energy (e.g., diffusion).

Pedigree A diagram that shows the occurrence of a genetic trait in several generations of a family.

Periodic table A chart that organizes all known elements into a grid of rows and columns arranged by increasing number of protons.

Periodic trends Properties of elements that repeat when the elements are organized by increasing atomic number.

pH The negative of the common logarithm of the hydronium ion concentration of a solution.

Phase changes A change from one state (solid or liquid or gas) to another without a change in chemical composition.

Phosphorylation The process of going from a low energy phosphate to a higher energy phosphate (ADP to ATP) by the means of a proton-motive force.

Photosynthesis Synthesis of organic compounds (e.g., carbohydrates) using light energy, CO₂, and water.

Phylum A major division of a biological kingdom, consisting of closely- related classes.

Physical attribute An attribute that can be described using senses.

Physical change A change in the form of a substance, but not in its chemical composition; chemical bonds are not broken in a physical change.

Physical properties Any characteristics of a material that can be observed without changing the identity of the material itself.

Pitch The high and low notes which result from the frequency of sound waves.

Plantae The kingdom of multi-cellular, eukaryotic, photosynthetic organisms.

Plate tectonics A model of the earth's dynamic motion characterized by a small number of semi-rigid plates which float on some viscous underlayer in the mantle.

Polarity (1) The orientation of the magnet or dry cell; (2) uneven distribution of charge on a covalent molecule.

Pollination The movement of pollen from a stamen to a pistil.

Polyatomic ion An ion made up of two or more atoms bonded together that acts as a single unit with a net charge.

Polygenic inheritance Traits that are controlled or influenced by several genes.

Potential difference The work needed to cause the motion of a unit electric charge between two points. $V = W/q$, in which V is potential difference, W is work, and q is charge.

Potential energy The energy an object has because of its composition or position.

Power The rate at which energy is transferred.

Precipitation A deposit on the Earth of hail, mist, rain, sleet, or snow.

Predict To state, tell about, or make known in advance, especially on the basis of special knowledge.

Prediction An indication in advance based on observation, experience, or scientific reason.

Principle A basic generalization that is accepted and that can be used as a basis for reasoning or conduct.

Probe Instrument used to take measurements supported by data-gathering software.

Projectile A propelled object that moves in a curved path.

Properties A characteristic trait or peculiarity, especially one serving to define or describe its possessor.

Protein synthesis The process by which the genetic code is used to produce proteins in a cell.

Protista The kingdom of mostly unicellular, eukaryotic organisms.

Prokaryote Organism that consists of a single cell that does not have membrane-bound organelles.

Proton The particle of an atom which has a positive charge.

Pseudo-science Any body of knowledge purported to be scientific or supported by science but which fails to comply with the scientific method.

Punnett square A grid system used in computing possible combinations of genes resulting from random fertilization.

Purebred Offspring of genetically pure parents that have identical alleles, e.g., tt , TT .

Qualitative Concerning the properties of matter than cannot be measured.

Quantitative Capable of being measured or expressed in numerical terms; concerning the amounts of matter present.

Radiation Transfer of energy in the form of waves.

Radioactive decay The spontaneous disintegration of a nucleus into a slightly lighter and more stable nucleus, accompanied by emission of particles, electromagnetic radiation, or both.

Reactivity Tendency of a substance to be involved in a chemical reaction.

Recycle To use again, especially to reprocess: recycle aluminum cans.

Reduce To bring down, as in extent, amount, or degree; diminish; use less.

Reflection (1) When a wave strikes an object and bounces off; (2) bouncing back of waves from a boundary of the medium.

Refraction The bending of waves. Change of direction of waves as they pass through the boundary between two media having different wave speeds.

Relative humidity The ratio of the amount of water vapor actually present in the air to the greatest amount possible at the same temperature.

Relative position The way in which an object is placed in relation to another object.

Remote sensing The measurement or acquisition of information about an object by a device not in physical contact with the object.

Renewable Relating to or being a commodity or resource, such as solar energy or firewood, that is inexhaustible or replaceable by new growth.

Replicable Capable of being reproduced or duplicated.

Replication Duplication, especially of DNA.

Reproductive system Cells, organs, and tissues involved in the production and maturation of gametes.

Repulsion A tendency of objects with like charges to increase their distance from one another.

Resistance The property of a conductor that opposes the passage of electric charge and produces heat. Resistance depends on the temperature, material, and dimensions of the conductor.

Resonance Vibration of a system at its natural frequency of vibration.

Respiration (1) The transformation of organic and inorganic molecules by organisms for the acquisition of energy and cellular building blocks; (2) the exchange of oxygen and carbon dioxide between cells and blood; (3) inhalation and exhalation of the lungs.

Respiratory system The group of organs responsible for carrying oxygen from the air to the bloodstream and for expelling the waste product carbon dioxide.

Reuse Use again.

Revolution Movement of an object around another object.

Ribosomes A cell organelle composed of RNA and protein; the site of protein synthesis.

Rock An aggregate of one or more minerals and/or organic materials.

Rock cycle An inter-related sequence of events by which rocks are initially formed, altered, and re-formed as a result as magmatism, erosion, sedimentation, and metamorphism.

Rotation One full spin of an object around an axis.

Salinity A measure of the quantity of dissolved salts in solutions (e.g., sea water).

Saturated A solution that contains the maximum solute at a given temperature and pressure.

Scientific law A rule that describes but does not explain a pattern in nature and predicts what will happen under specific conditions.

Seasons Changes in average temperature and length of day that result from the tilt of Earth's (or any planet's) axis with respect to the plane of its orbit.

Seismic waves Waves produced due to the vibration of the Earth before, during, and after an earthquake.

Series circuit A circuit that connects several objects one after another so that the current flows in a single path.

Sex-linked trait A trait that is determined by a gene found on the X chromosome.

Sexual reproduction Reproduction where male and female gametes fuse to form a zygote.

Simple dominance The principle of genetics stating that when organisms pure for contrasting traits are crossed, all of their offspring will show the dominant trait.

Simple machine Machine made of one or two parts.

Single displacement reaction The chemical reaction when one element replaces another element in a compound.

Skeletal system The system which forms the rigid framework of organisms.

Solar eclipse Passage of the moon between the sun and Earth causing the moon to cast a shadow.

Solid Material with a definite shape and volume.

Solstice The two instances during the year in which the noon sun is directly overhead at 23.5 degrees South.

Solubility Amount of a substance that will dissolve in a solvent at a given temperature.

Solute The substance that is dissolved to form a solution.

Solvent The substance that dissolves a solute to form a solution.

Somatic cells Body cells, excluding gametes.

Source The point or part of a system where energy or mass is added to the system.

Space probes A rocket-propelled guided missile that can escape the Earth's atmosphere; makes observations of the solar system that cannot be made by terrestrial observation.

Species A fundamental category of taxonomic classification, ranking below a genus or subgenus and consisting of related organisms capable of interbreeding and producing fertile offspring.

Specific gravity The ratio of the density of a substance to the density of water.

Specific heat The amount of heat energy required to increase the temperature of one gram of a substance one degree Celsius.

Spectrometers Instruments that produce a spectrum of the light emitted or reflected by an object and contain a scale so that the energies (or wavelengths) of the photons making up the spectrum can be measured.

Speed The rate of motion.

Spontaneous generation The hypothesis that living organisms can arise from nonliving matter.

Static electricity The net build-up of charges in an object.

Static In a fixed or stable condition.

Stem cell An undifferentiated cell from which specialized cells develop.

Stoichiometry The study of the quantitative relationships between the amounts of reactants and products formed during a chemical reaction.

Streak The color of a mineral in its powdered form.

Subatomic Constituents of the atom.

Substances A material of a particular kind.

Symbiotic relationship An interactive association between two or more species living together; may be helpful to one and harmful to the other, may be helpful to one and neither helpful nor harmful to the other, or may be beneficial to both.

Synthesis reaction The chemical reaction when two or more substances combine, forming another substance.

System A group of structurally or functionally related parts.

Taxa A classification group or entity (singular- taxon).

Taxonomy The science of naming and classifying organisms.

Technology The body of knowledge available to a society that is of use in fashioning implements, practicing manual arts and skills, and extracting or collecting materials.

Texture The appearance and feel of a surface (e.g., the smooth texture of rocks).

Theory An explanation for some phenomenon that is based on observation, experimentation, and reasoning.

Thermometer An instrument for measuring temperature.

Tides The periodic rising and falling of the ocean resulting from lunar and solar gravitational forces acting upon the rotating Earth.

Tissue An aggregate of cells having a similar structure and function.

Topographical maps Maps that show geographical features.

Trait A distinguishing characteristic or quality of an organism.

Transcription Process by which messenger RNA is made from DNA.

Transform To change markedly the appearance or form of.

Translation Process by which the ribosome, m-RNA, and the t-RNA with its amino acid come together to form a polypeptide.

Translucent Allowing light to pass through, but only diffusely, so that objects on the other side cannot be clearly distinguished.

Transparent Allowing light to pass through with little or no interruption or distortion so that objects on the other side can be clearly seen.

Transverse waves A periodic disturbance in which particles of the medium move perpendicular to the line of propagation of the disturbance.

Unsaturated Solution that contains less than the maximum amount of solute dissolved in a solution at a given temperature.

USGS United States Geological Survey. The mission of the U.S. Geological Survey is to provide geologic, topographic, and hydrologic information that contributes to the wise management of the Nation's natural resources.

Vacuoles An organelle that stores water and other materials.

Valence number The electrons in an atom's outermost orbitals; determines the chemical properties of an element.

Van der Waals forces Accounts for the intermolecular forces of attraction between molecules.

Vapor Pressure A force exerted by gaseous molecules which are in equilibrium with a liquid or solid.

Variable One of the factors that can be altered in an investigation; subject to variation; changeable.

Vascular plant Any plant containing xylem and phloem.

Vector A physical quantity that has both a magnitude and a direction.

Velocity The speed and direction of a body.

Vertebrate Organism that has a spinal column.

Vibration A continuing periodic oscillation relative to a fixed reference point; a single complete oscillation.

Viscous, viscosity Used to describe a fluid that has a relatively high resistance to flow.

Volume (1) The amount of space an object occupies; (2) loudness or softness of a sound.

VSEPR theory Repulsion between the sets of valence-level electrons surrounding an atom causes these sets to be oriented as far apart as possible.

Waning moon The decrease of the moon's illuminated visible surface.

Water Cycle The sequence of conditions through which water passes from vapor in the atmosphere through precipitation upon land or water surfaces and ultimately back into the atmosphere as a result of evaporation and transpiration -- called also hydrological cycle.

Wave A disturbance or oscillation described in general by its amplitude, velocity, frequency, and phase.

Wave length The distance between successive crests, or successive troughs.

Waxing moon The increase of the moon's illuminated visible surface.

Weather The state of the atmosphere at a given time with respect to heat or cold, wetness or dryness, calm or storm, clearness or cloudiness. Changes in the atmosphere.

Weathering Physical disintegration and chemical decomposition of organic and rocky material upon exposure to atmospheric agents.

Weight The measure of the gravitational force acting on an object.

Work (1) The transfer of energy through motion; (2) the result of a force acting against resistance to produce motion. $W = Fd \cos q$, in which q is the angle between the force and the direction that the system moves.

Xylem Vascular tissue in plants that transports water and minerals from roots to leaves.

Phloem Vascular tissue in plants that transports dissolved sugars.

Zygote A cell that results from the fusion of gametes.